

Amendments to the Specification:

Please add the following new paragraph at page 1, after the title of the application:

This application is the U.S. national phase application of PCT International Application No. PCT/GB2004/002262, filed May 26, 2004, and claims priority of British Patent Application No. 0312769.3, filed June 4, 2003.

Please add the following heading at page 1, line 2:

FIELD OF THE INVENTION

Please add the following heading at page 1, line 6:

BACKGROUND OF THE INVENTION

Please replace the paragraph at page beginning at page 3, line 24, with the following rewritten paragraph:

As can be seen from considering the ~~prior~~ art in the field of acetylene hydrogenation, there is a need for an acetylene hydrogenation process and catalyst which is highly selective in order to maximise the conversion of acetylene in an olefin-containing feed, whilst being relatively inactive towards the olefinic bond.

Please add the following heading at page 3, line 28:

SUMMARY OF THE INVENTION

Please replace the paragraph beginning at page 3, line 29, with the following rewritten paragraph:

According to a first aspect of the invention we provide a catalyst suitable for use in the hydrogenation of a hydrogenatable organic compound which comprises a palladium compound supported upon an alumina support material characterised in that said catalyst further comprises a promoter which comprises a compound of a lanthanide. The catalyst is particularly suitable for the hydrogenation of acetylenic compounds, especially for the selective hydrogenation of acetylenes in olefin-containing gas streams.

Please add the following paragraph and heading at page 3, line 35:

According to a second aspect of the invention, we further provide a process for the hydrogenation of a hydrogenatable organic compound comprising the step of passing a mixture of a gaseous feed containing the hydrogenatable organic compound and hydrogen over a catalyst comprising a palladium compound supported upon an alumina support material wherein the catalyst further comprises a promoter which comprises a compound of a lanthanide. The catalyst is especially suitable for the selective hydrogenation of acetylenic compounds, especially in the presence of other hydrogenatable compounds such as olefinic compounds. Thus, the process of the invention in a preferred form comprises the selective hydrogenation of acetylene and /or higher alkynes in the presence of an olefin, e.g. ethylene.

DETAILED DESCRIPTION OF THE INVENTION

Please replace the paragraph beginning at page 3, line 36, with the following rewritten paragraph:

~~The~~ Generally, the catalyst according to the invention is active for hydrogenation when the palladium is present in metallic form. The catalyst is usually made by first manufacturing a precursor in which a palladium compound, normally a salt or an oxide, is present on the support. It is normal commercial practice to supply such catalysts in the form of a reducible palladium compound supported upon an alumina support material, such that the reduction of the palladium compound to metallic palladium is carried out in situ in the reactor by the end-

user of the catalyst. The term "catalyst" is used herein to refer both to the non-reduced form, in which the palladium is present in the form of a reducible palladium compound, and to the reduced form, in which the palladium is present as palladium metal. Thus the palladium compound may comprise a palladium salt, e.g. a nitrate or chloride, palladium oxide or palladium metal.

Please delete the paragraph at page 4, lines 8 - 17.

Please replace the paragraph beginning at page 4, line 19, with the following rewritten paragraph

The support may be selected from silica, titania, magnesia, alumina or other inorganic carriers such as calcium-aluminate cements. Preferably the support comprises alumina. A preferred alumina support material is predominantly an alpha-alumina. Alpha alumina is already well known for use as a support for palladium catalysts for use in hydrogenation reactions, as described by example in EP-A-0124744, US-A-4404124, US-A-3068303 and other references. It may be made by calcining an active alumina (e.g. gamma alumina or pseudoboehmite) at a temperature of 800 - 1400°C, more preferably 1000 - 1200°C. A detailed description of the effect on the physical properties of alumina of calcining at such temperatures is given in US-A-3113980. Other forms of alumina may be used, for example active aluminas or transition aluminas as described in US-A-4126645. Usually the support (for example an alpha-alumina) has a relatively low surface area. Following the teachings of the prior art, it is preferred that for use in "front-end" hydrogenation the surface area, as determined by the well known BET methodology is less than 50 m²g⁻¹ and more preferably less than 10 m²g⁻¹. The support is preferably of relatively low porosity, e.g. 0.05 - 0.5 50 cm³g⁻¹. Preferably the mean pore diameter lies within the range 0.05 - 1 micron, more preferably from about 0.05 to 0.5 microns.